

WHAT IS CLAIMED IS:

1. A siRNA expression cassette comprising:  
a promoter;  
a sequence encoding ds RNA of 19-25 base pairs operatively linked to said promoter; and  
a sequence encoding a nuclear delivery indicator.
2. The siRNA expression cassette of claim 1 further comprising one or more indicators of cellular delivery of the expression cassette.
3. The siRNA expression cassette of claim 1, wherein the sequence encoding the ds RNA and the sequence encoding the nuclear delivery indicator are on the same plasmid or vector.
4. The siRNA expression cassette of claim 1, wherein the promoter is a U6 or H1 promoter.
5. The siRNA expression cassette of claim 1 which expresses small RNA in mammalian cells.
6. The siRNA expression cassette of claim 2, wherein the indicator of cellular delivery is selected from the group consisting of a fluorescent dye, a quantum dot and an imaging molecule for non-invasive diagnosis.
7. The siRNA expression cassette of claim 6, wherein the non-invasive diagnosis is selected from the group consisting of NMR, MRI, CT, and PET scanner.
8. The siRNA expression cassette of claim 1, wherein the sequence encoding a nuclear delivery indicator is a sequence for GFP or luciferase operably linked to a promoter.
9. The siRNA of claim 8, wherein the promoter is tissue specific.
10. A kit for *in vitro* and/or *in vivo* gene knock down studies at RNA level which comprises the following parts:
  - 1) a short interfering RNA (siRNA) expression cassette;
  - 2) a reporter gene cassette that exhibits reporter gene expression if it is successfully delivered to, and expressed in, the nuclei of a eukaryotic cell; and
  - 3) a transfection reagent that is able to efficiently deliver the siRNA expression cassette and the reporter gene cassette into the eukaryotic cells.

11. The kit of claim 10, wherein the siRNA expression cassette and the reporter gene cassette are on the same plasmid or vector.
12. The kit of claim 10, wherein the siRNA expression cassette further comprises an intracellular traffic marker.
13. The kit of claim 10, wherein the siRNA expression cassette is driven by a U6 promoter or a H1 promoter and expresses small RNA in mammalian cells.
14. The kit of claim 10, wherein the siRNA expression cassette expression is selected from the group consisting of non-specific expression, tissue-specific expression and cell-specific expression.
15. The kit of claim 12, wherein the intracellular traffic marker is selected from the group consisting of a fluorescent dye, a quantum dot and an imaging molecule for non-invasive diagnosis.
16. The kit of claim 15, wherein the non-invasive diagnosis is selected from the group consisting of NMR, MRI, CT, and PET scanner.
17. The kit of claim 10, wherein the reporter gene cassette is a fluorescent protein gene expression cassette operably linked to a promoter.
18. The kit of claim 17, wherein the promoter confers tissue specific expression.
19. The kit according to claim 17, wherein the fluorescent protein gene expression cassette comprises a green fluorescent protein gene.
20. The kit of claim 10, wherein the reporter gene cassette is adjacent to a DNA fragment of the siRNA expression cassette.
21. The kit of claim 10, wherein the interference RNA expression cassette and the report gene synthesis cassette are circular or linear.
22. The kit of claim 10, wherein the transfection agent is selected from the group consisting of lipid based transfection reagents with or without cationic groups, polymer based transfection reagents with or without cationic groups, lipid-polymer-based transfection reagents with or without cationic groups, polysaccharide-based transfection reagents with or without cationic groups, and peptide-based transfection reagents with or without cationic groups.

23. The kit of claim 10, wherein the transfection reagent further comprises a cell culture reagent.

24. The kit of claim 23, wherein the cell culture reagent is selected from the group consisting of cyto-reductive reagents, cell attach reagents, cell growing reagents, and cell inhibiting reagents.

25. The kit of claim 10, wherein the transfection reagent is a gene delivery enhancer or a targeting molecule.

26. The kit of claim 25, wherein the gene delivery enhancer is selected from the group consisting of an endosomal lytic reagent and a nuclear localization element.

27. The kit of claim 25, wherein the targeting molecule is selected from the group consisting of a peptide, a protein, an antibody or its related fragment, a sugar, and a synthetic molecule.